

Rocglen Coal Mine Community Consultative Committee Meeting #9

Environmental Monitoring Report July – September 2010

Noise Monitoring

Attended Noise Monitoring

Attended noise monitoring was undertaken on the 21st & 22nd September 2010, as required for operational noise monitoring under the Noise Monitoring Program, with results outlined below:

Noise Monitoring Results – 21 st and 22 September 2010 (Day)				
Location	Time	dB(A),Leq	Wind speed/ direction	Identified Noise Sources
Surrey (22/9)	7:37 AM	44	2.4m/s - SSE	Birds & insects (43), wind (35), RCM (25)
Costa Vale (21/9)	2:36 PM	33	1.6m/s - SSE	Wind in trees (31), birds (27), RCM (25)

Noise Monitoring Results – 21 st September 2010 (Evening)				
Location	Time	dB(A),Leq	Wind speed/ direction	Identified Noise Sources
Surrey	9:21 PM	47	<0.5 m/s, N	Crickets (47), RCM (25)
Costa Vale	8:51 PM	35	<0.2 m/s, N	RCM (34) , insects (29)

Noise Monitoring Results – 21 st September 2010 (Night)				
Location	Time	dB(A),Leq	Wind speed/ direction	Identified Noise Sources
Surrey	11:23 PM	31	2m/s - S	Wind (30), frogs (25), RCM (<20)
Costa Vale	12:04 AM	36	2m/s - S	Wind in trees (36), RCM (<20)

The results indicate that, under the operational and atmospheric conditions at the time, noise emissions from the mine did not exceed the criterion of 35 dB(A) at either monitoring location.

In addition to the operational noise, the noise from the mine must not exceed 45 dB(A) L₁ (1 min) between the hours of 10 pm and 7 am. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine.

During the night time measurement circuit the L1 (1 min) noise from the mine did not exceed 45 dB(A) at either monitoring location.

Despite these noise monitoring results, additional noise monitoring was undertaken at the “Surrey” residence to address noise concerns raised by the

resident and to attempt to monitor noise levels over a range of weather conditions. The results indicated compliance within the night survey, however noise emissions exceeded the 35 dB(A) criteria by 5 dB at 7.15am on the 31/8/2010. The mine noise was from engine revs (trucks and shovels), dozer tracks and general mine hum. On review of the weather station data at the time it was identified that a temperature inversion was present which would have affected results. Additional noise monitoring was also undertaken at the “Penryn” residence on the 21/9/2010 (following a noise related complaint from the resident) with day, evening and night results all being compliant.

Road Noise Monitoring

Whitehaven Coal is required to monitor road noise to determine that the cumulative noise level generated from traffic generated by Tarrawonga Coal Mine, Canyon Coal Mine (mining ceased) and Rocglen Coal Mine does not exceed 60 dB(A), $L_{eq}(1hour)$ during the day and 55 dB(A), $L_{eq}(1hour)$ during the night. No results were obtained during this period as monitoring is only required once every 6 months. The next round of monitoring will be conducted in December 2010 with results presented in the next CCC meeting.

Unattended Noise Monitoring

Unattended noise monitoring was carried out in September 2010 at both the “Costa Vale” and “Surrey” properties with results provided in the following tables. Unattended monitoring provides noise levels from all sources and does not distinguish mine related noise from other noise sources.

Costa Vale

Date	Leq(day)	Leq(eve)	Leq(night)	L90(day)	L90(eve)	L90(night)
18-Sep-10	45.3	35.2	37.8	21.5	19.1	19.1
19-Sep-10	43.6	33.8	38.4	19.4	19.1	19.1
20-Sep-10	48.4	33.9	43.7	22.5	25.5	19.1
Laeq	46	34	41			
L90				22	19	19

Surrey

Date	Leq(day)	Leq(eve)	Leq(night)	L90(day)	L90(eve)	L90(night)
18-Sep-10	46.1	33.7	37.5	24.4	18.1	17.1
19-Sep-10	40.7	40.1	34.4	21.5	20.9	17.1
20-Sep-10	40	39.5	38.1	24.3	24.8	20.2
Laeq	43	39	37			
L90				24	21	17

Blast Monitoring

Blasting Results

Since the first shot there have been 55 blasts. All blasts during this report period have been compliant within the limits of 115dB_L and 5mm/s.

To date, the highest overpressure recorded is 119.9 dB_L recorded at “Costa Vale” on the 24th August 2009. The highest ground vibration recorded is 1.50 mm/s recorded at “Roseberry” on the 12th December 2008.

Air Quality

Deposited Dust Results

The deposited dust results (g/m²/month) obtained for the site over the last 12 months are as follows:

Air Quality (Dust Deposition) Results

Month	BD2 - Glenroc	BD3 - Belah	BD4 - Surrey	BD5 - Stratford	BD6 - Roseberry	BD7 - Roseglass	BD8 - Yarrowonga
October 2009	3.3	2.3	1.2	2.9	2.8	3.6	2.0
November 2009	1.0	1.5	2.0	2.0	1.2	1.9	2.6
December 2009	2.2	1.6	0.6	1.1	1.0	0.9	0.9
January 2010	1.7	2.8	1.4	2.2	2.5	1.5	1.3
February 2010	2.3	1.2	0.8	0.7	1.4	3.1	1.7
March 2010	4.3	3.7	0.9	1.1	1.2	0.7	0.8
April 2010	1.8	0.7	0.9	0.5	0.4	4.0	1.0
May 2010	0.5	0.9	0.4	0.4	0.3	0.5	0.2
June 2010	1.6	0.8	0.9	0.7	0.7	0.8	1.4
July 2010	0.8	0.6	0.4	0.4	0.4	0.4	0.4
August 2010	1.0	0.4	0.4	2.6	0.6	0.4	0.4
September 2010	0.5	0.7	1.1	0.6	1.8	1.5	0.8
Annual Average	1.8	1.4	0.9	1.3	1.2	1.6	1.1

Deposited dust levels have continued to remain at relatively low levels since the last CCC meeting. The deposited dust levels have been relatively consistent over the last 12 months. The annual average has reduced at each site since the last meeting (between 0.5 – 1.1 g/m²/month) based on the exclusion of the elevated results in September 2009 associated with regional dust storms.

All monitors remain within the standard concentration threshold of 4g/m²/month.

PM₁₀ Results

The annual average for PM₁₀ readings as determined from data from October 2009 to September 2010 is as follows:

Glenroc: 18.32µg/m³
Surrey/Roseberry: 15.45µg/m³

Running average PM₁₀ levels remain below the annual average limit of 30µg/m³.

The 24hr criterion of 50µg/m³ was not breached at either Glenroc or Roseberry during the period.

The highest PM₁₀ readings at each site are as follows:

Glenroc: 113 µg/m³ (14th December 2009)
Roseberry: 101 µg/m³ (8th December 2009)

Water Monitoring

Ground Water

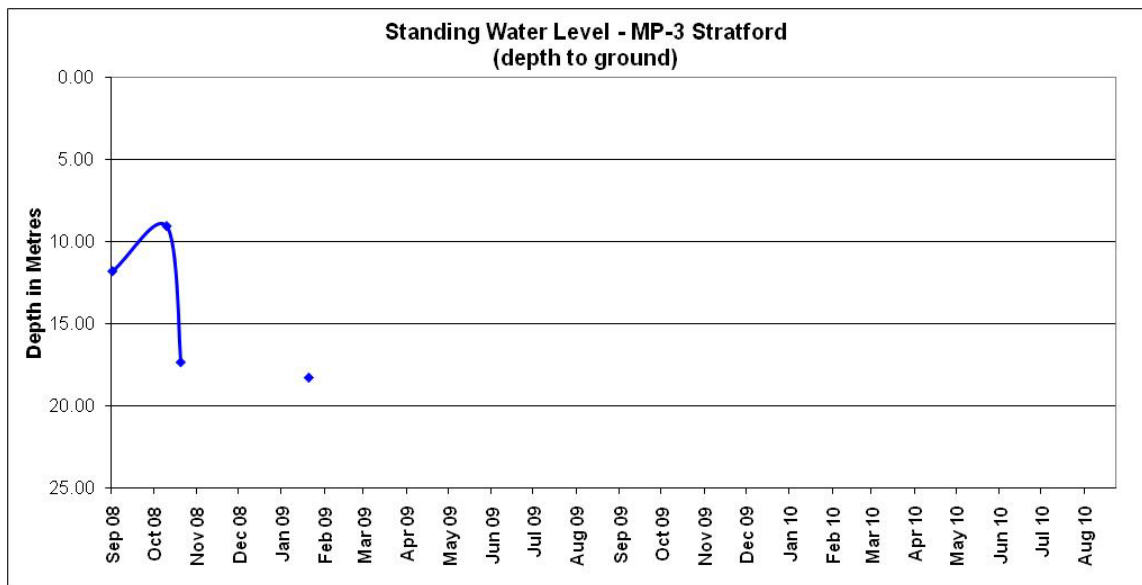
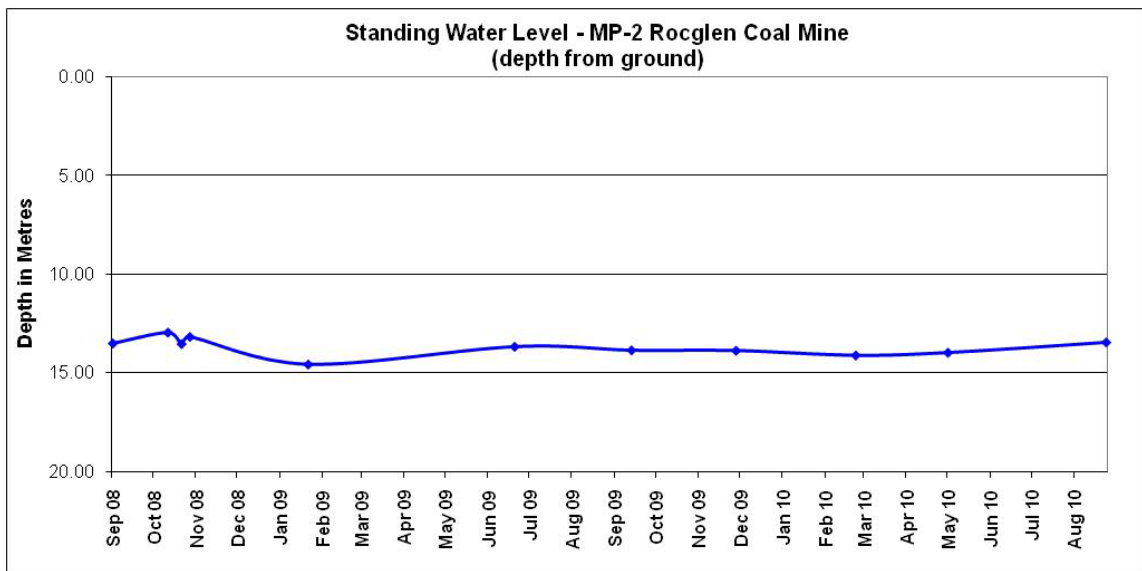
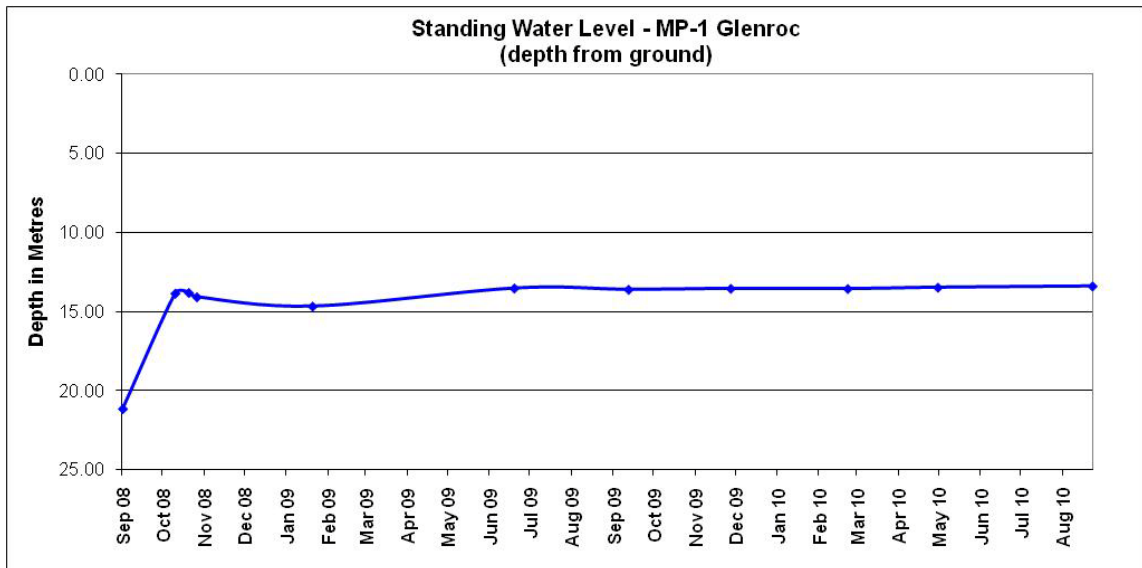
Groundwater monitoring data obtained to date is presented in the following table.

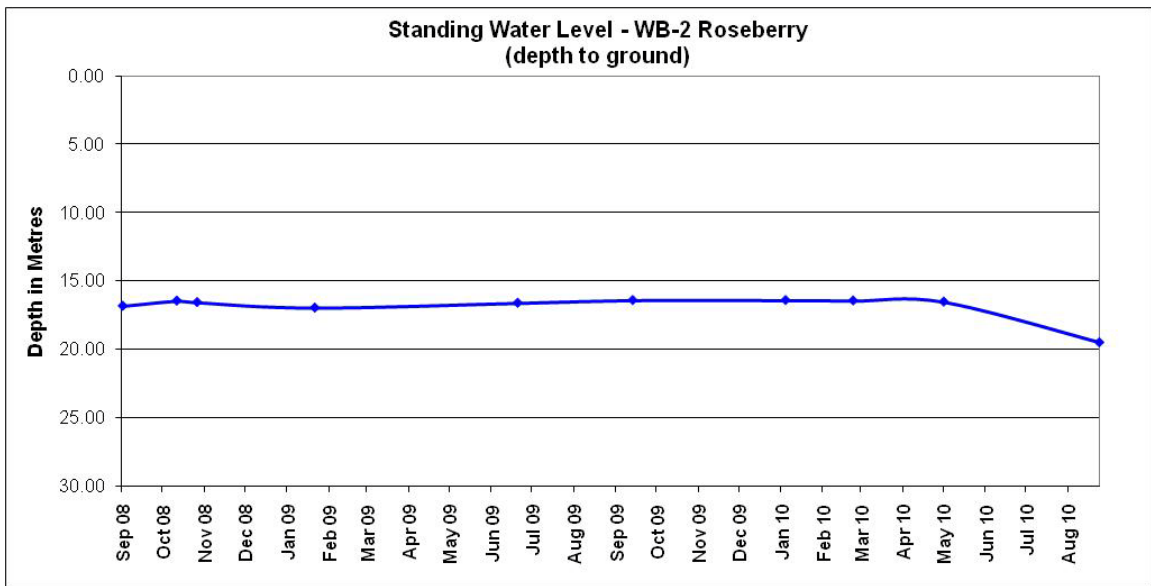
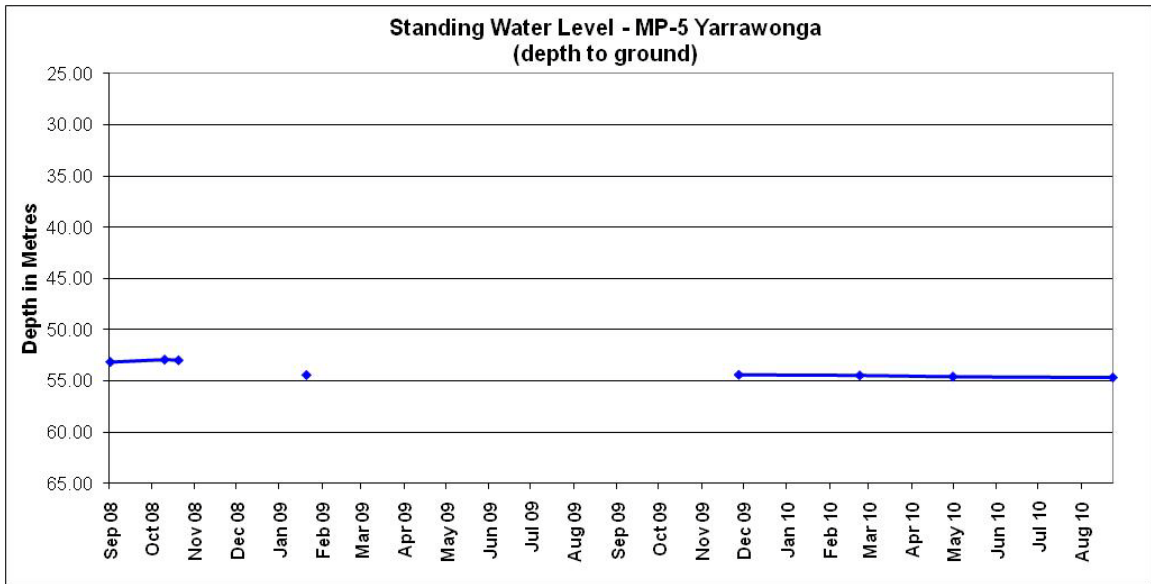
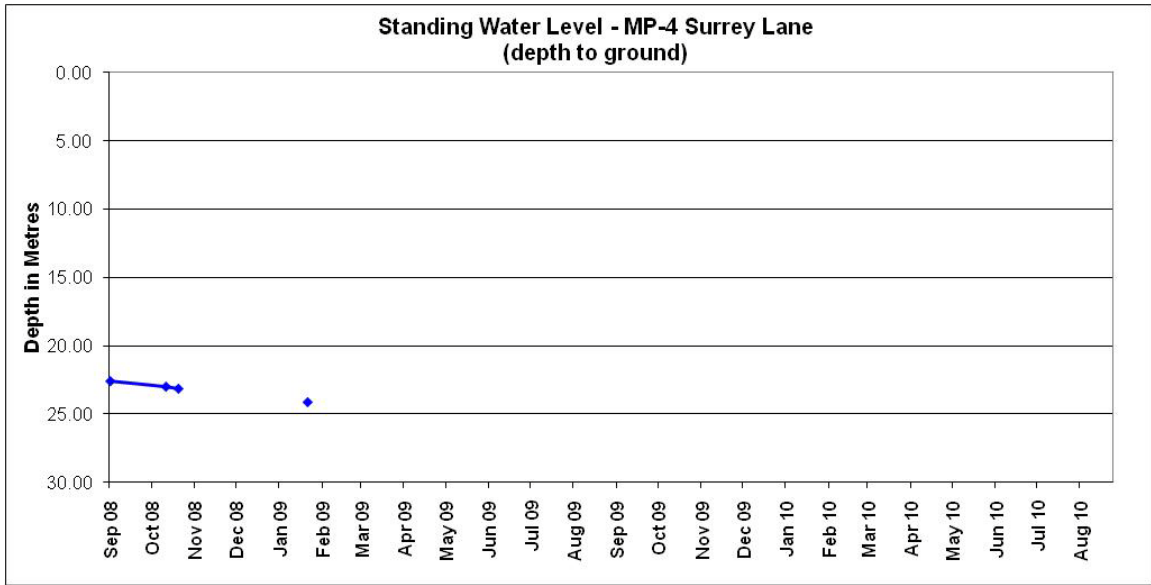
Site	Date	SWL (m)	pH	Elect. Conduct µs/cm
MP1	September 08	21.14		
	13 October 08	13.87		
	23 October 08	13.83		
	29 October 08	14.10	7.6	2360
	23 January 09	14.69		
	22 June 09	13.55	7.8	2250
	15 September 09	13.63		
	30 November 09	13.57	7.85	2250
	25 February 10	13.58		
	3 May 10	13.5	8.06	2100
26 Aug 10	13.42	8	1650	
MP2	September 08	13.53		
	13 October 08	12.98		
	23 October 08	13.56		
	29 October 08	13.20	7.3	4180
	23 January 09	14.60		
	22 June 09	13.70	7	5210
	15 September 09	13.88		
	30 November 09	13.90	6.99	4560
	25 February 10	14.14		
	3 May 10	14	7.37	4760
26 August 10	13.48	7.07	5060	
MP3	September 08	11.81		
	13 October 08	9.06		
	23 October 08	17.36		

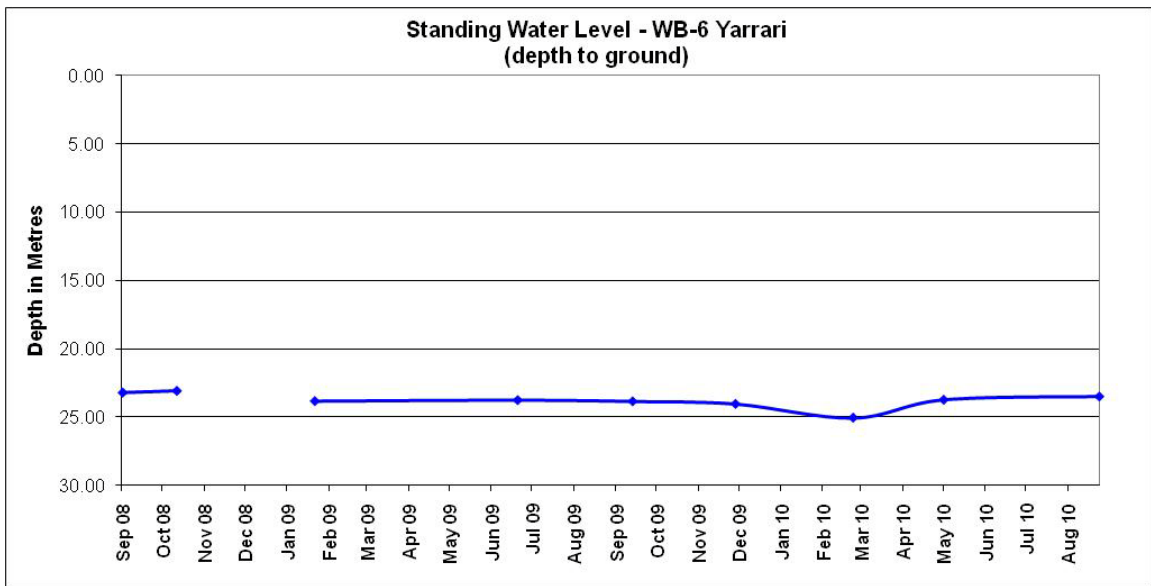
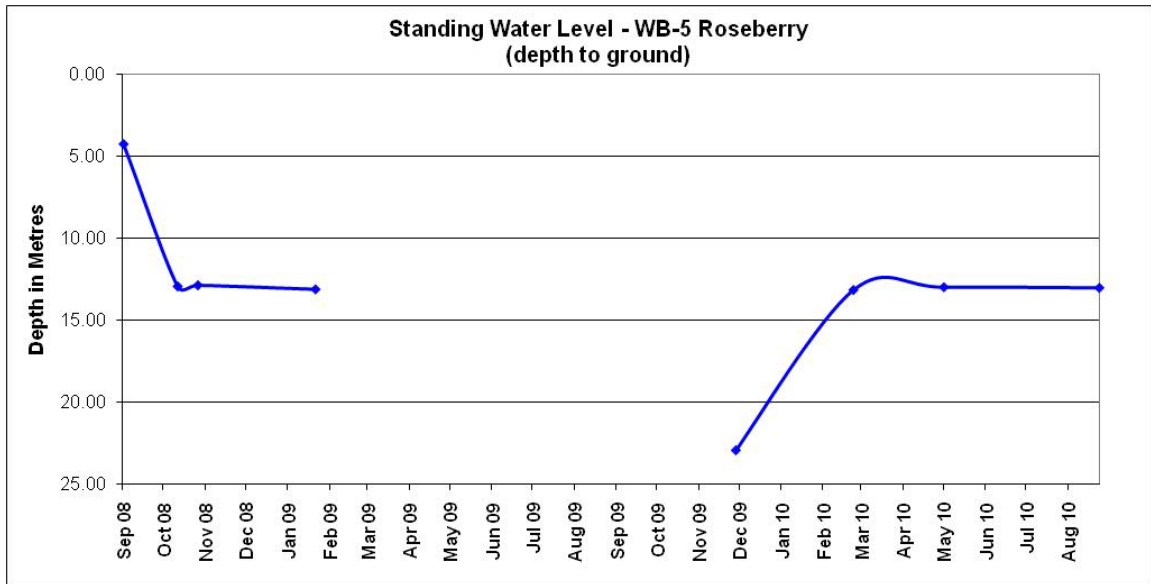
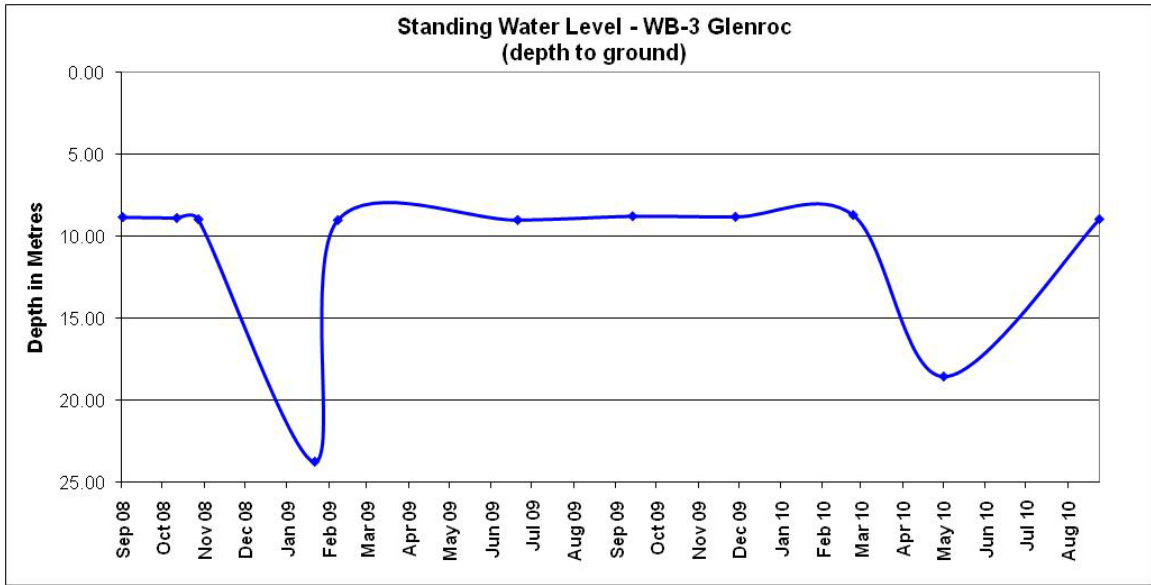
	29 October 08	N/S Bore Dry		
	23 January 09	18.3 (mud)		
	22 June 09	N/S Bore Dry		
	15 September 09	Dry		
	30 November 09	Dry		
	25 February 10	Dry		
	3 May 10	Dry		
	26 August 10	Dry		
MP4	September 08	22.62		
	13 October 08	23.02		
	22 October 08	23.17		
	29 October 08	N/S Bore Dry		
	23 January 09	24.16 (mud)		
	22 June 09	N/S Bore Dry		
	15 September 09	Dry		
	30 November 09	Dry		
	25 February 10	Dry		
	3 May 10	Dry		
	26 August 10	Dry		
MP5	September 08	53.13		
	13 October 08	52.9		
	23 October 08	52.96		
	29 October 08	N/S Bore Dry		
	23 January 09	54.44 (mud)		
	22 June 09	N/S Bore Dry		
	15 September 09	Dry		
	30 November 09	54.4	Insufficient water to sample	
	25 February 10	54.48		
	3 May 10	54.6		
	26 August 10	54.69		
WB1	13 October 08	8.95		
	28 October 08	8.85	7.9	1996
	NO ACCESS			
WB2	September 08	16.87		
	13 October 08	16.49		
	28 October 08	16.60	7.7	3430
	23 January 09	17.00		
	22 June 09	16.65	7.2	3160
	15 September 09	16.45		
	6 January 09	16.45	7.51	2010
	25 February 10	16.48		
	3 May 10	16.56	7.84	2190
	26 August 10	19.54	7.4	3000
WB3	September 08	8.82		
	13 October 08	8.87		
	29 October 08	8.95	7.2	4480
	23 January 09	23.72		
	10 February 09	9.0		
	22 June 09	8.99	7.5	4380
	15 September 09	8.76		
	30 November 09	8.8	7.74	3890
	25 February 10	8.69		
	3 May 10	18.53	7.88	4000
	26 August 2010	8.94	8.28	3260

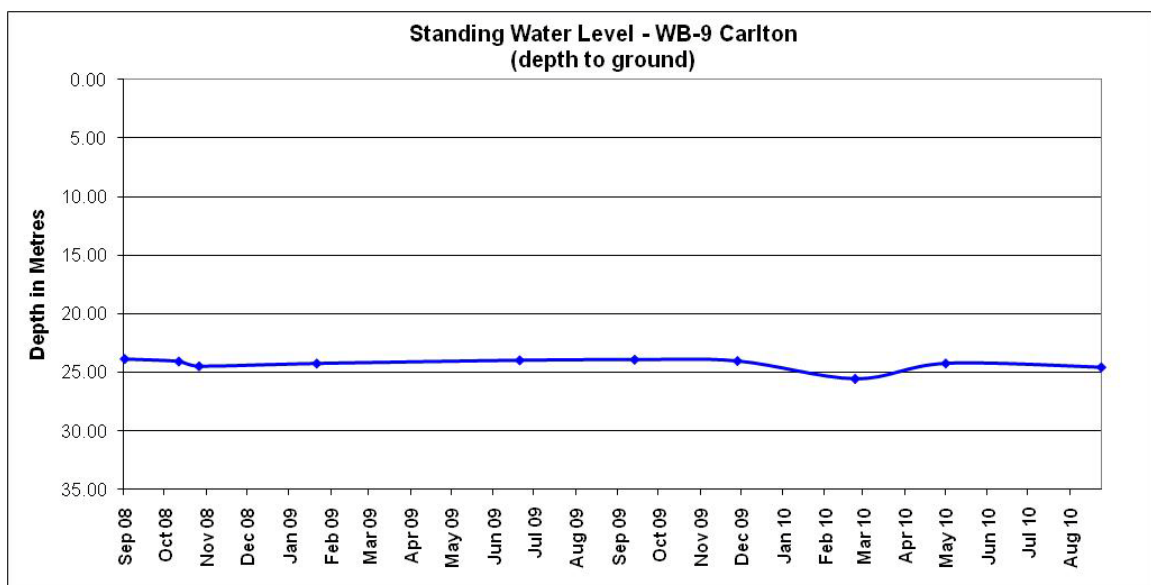
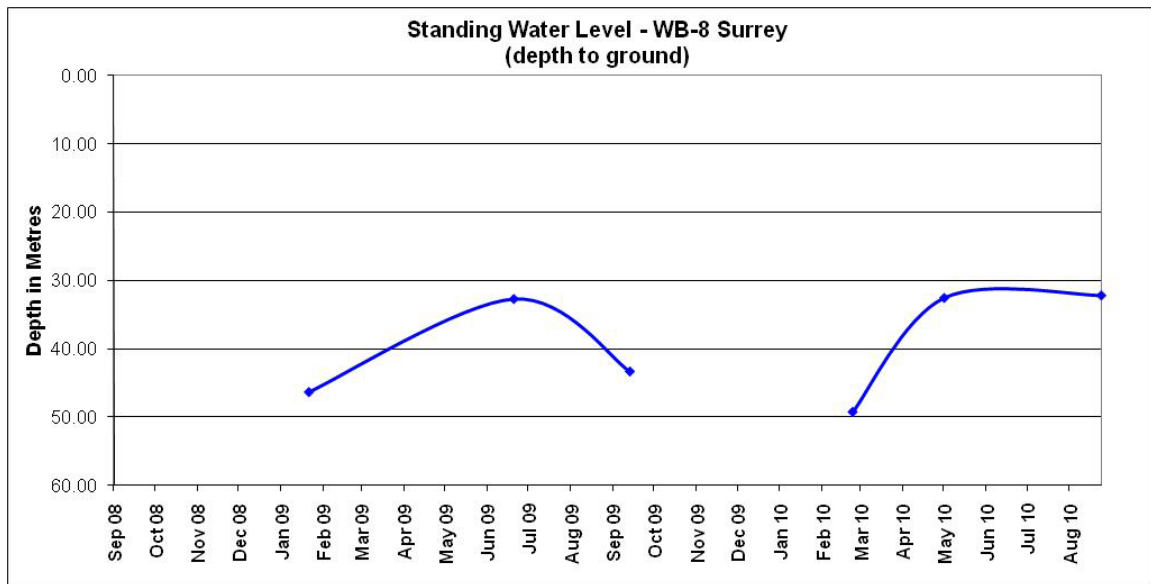
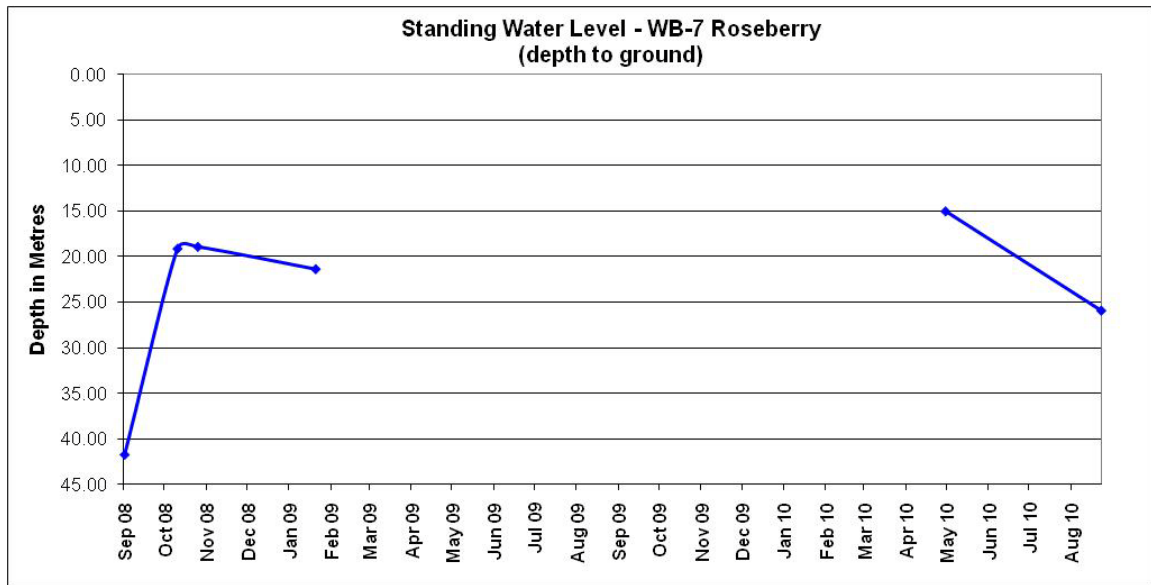
WB4	Casing Sealed	No Access		
	26 August 2010	Unable to dip	7.83	3650
WB5	September 08	4.23		
	13 October 08	12.92		
	28 October 08	12.85	7.2	8400
	23 January 09	13.1		
	22 June 09	No Access	6.6	7930
	15 September 09	No Access		
	30 November 09	22.93	7.06	4880
	25 February 10	13.14		
	3 May 10	12.97	7.43	6720
	26 August 10	13.01	7.47	7480
WB6	September 08	23.18		
	13 October 08	23.05		
	29 October 08	No Access		
	23 January 09	23.81		
	22 June 09	23.74	Unable to sample	
	15 September 09	23.83		
	30 November 09	24.02	No sample – bore equipped	
	25 February 10	25.05		
	3 May 10	23.71		
	26 August 10	23.47	Bore equipped	
WB7	September 08	41.75		
	13 October 08	19.11		
	28 October 08	18.90	7.2	2730
	23 January 09	21.35		
	22 June 09		7.4	2690
	15 September 09	Bore equipped		
	30 November 09	Unable to dip	7.3	2260
	25 February 10	Unable to dip		
	3 May 10	15	7.45	2470
	26 August 10	25.91	Unable to sample – bore equipped	
WB8	September 08	No Access		
	13 October 08	No Access		
	29 October 08	No Access		
	23 January 09	46.4		
	22 June 09	32.75	8.2	2240
	15 September 09	43.38		
	30 November 09	Dry		
	25 February 10	49.32		
	3 May 10	32.59	Unable to Sample	
	26 August 10	32.23	Unable to Sample	
WB9	September 08	23.88		
	13 October 08	24.09		
	28 October 08	24.50	7.5	931
	23 January 09	24.27		
	22 June 09	23.99	7.9	1080
	15 September 09	23.94		
	30 November 09	24.05	7.14	1020
	25 February 10	25.58		
	3 May 10	24.26	Unable to Sample	
	26 August 10	24.59	7.72	1057

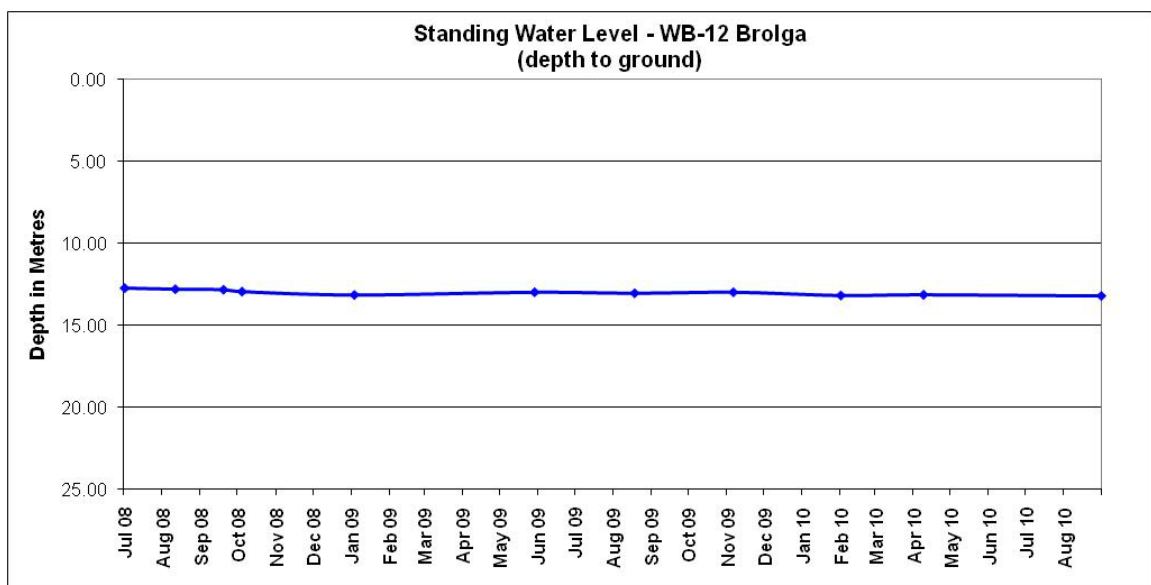
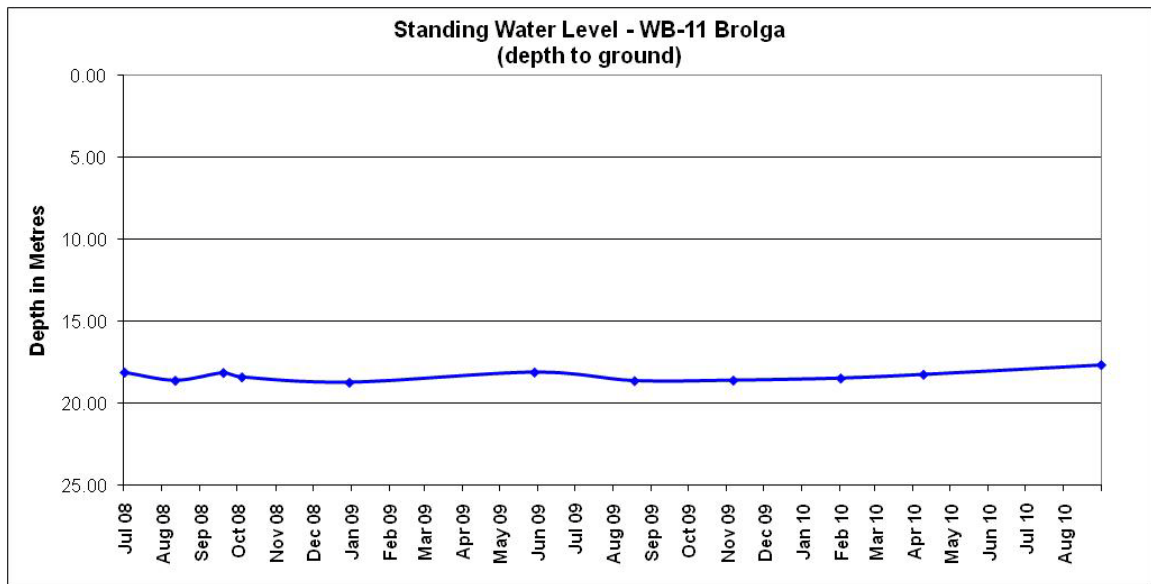
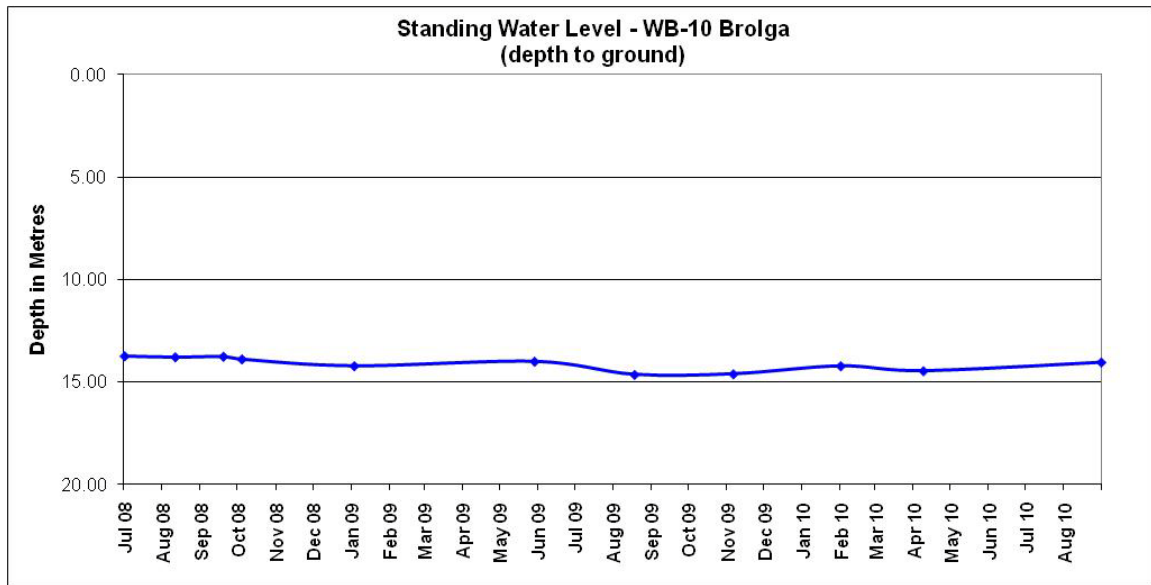
WB10	July 08	13.75		
	September 08	13.80		
	13 October 08	13.77		
	28 October 08	13.9	7.4	2235
	27 January 09	14.23		
	22 June 09	14.01	7	2220
	11 September 09	14.65		
	30 November 09	14.62	6.89	1690
	25 February 10	14.23		
	3 May 10	14.47	7.93	2010
	24 September 10	14.05	6.7	1833
WB11	July 08	18.11		
	September 08	18.61		
	13 October 08	18.13		
	28 October 08	18.4	7.5	1086
	27 January 09	18.73		
	22 June 09	18.1	8	880
	11 September 09	18.63		
	30 November 09	18.6	6.65	929
	25 February 10	18.47		
	3 May 10	18.24	8.37	921
	24 September 10	17.65	7.59	865
WB12	July 08	12.73		
	September 08	12.80		
	13 October 08	12.83		
	28 October 08	12.95	8.1	2152
	27 January 09	13.16		
	22 June 09	12.99	8	2070
	11 September 09	13.05		
	30 November 09	12.99	8.34	1640
	25 February 10	13.19		
	3 May 10	13.15	8.27	1390
	24 September 10	13.22	8.71	873
Production Bore	September 08	55.24		
	13 October 08	50.18		
	28 October 08	49.90	7.3	4030
	27 January 09	49.90		
	22 June 09	>50	7.1	3580
	27 August 09		7.3	3330
	30 November 09		7.2	3160
	25 February 10	Bore equipped		
	3 May 10		7.52	3310
	26 August 10	Unable to dip	7.42	3340











Standing water levels have remained relatively consistent since the last CCC meeting with the exception of WB7, which has dropped approximately 10.91m over the last 3 months, and WB3, which has recovered approximately 9.59 m in 3 months. The recovery of WB3 confirms that the drop between March and May 2010 is likely due to the SWL being checked immediately following water being drawn from the bore. The drop at WB7 is also likely to be a result of SWL being checked at a time when the overhanging windmill was actively drawing water. This will be checked again during November 2010 to confirm if the SWL has recovered.

The next round of monitoring in November 2010 will continue to observe any ongoing trends.

Surface Water

Since the last CCC meeting there has been four wet weather discharges from site and one controlled discharge. The details are as follows:

- Controlled discharge SD3, 26th July 2010: Whitehaven undertook a controlled discharge from SD3 following flocculation of the dam using Floc Blocks. The resultant water quality confirmed compliance with all EPL criteria, with a drop in Total Suspended Solid (TSS) levels from >260mg/L to 17mg/L. This is well within the concentration threshold of 50mg/L allowing approximately 4ML to be discharged using an on-site pump. This provided increased storage capacity in SD3 and thus aimed at prevention of future discharge.
- Wet Weather Discharge SD3, 28th July 2010: Discharge occurred after 23.2mm of rain on the 28th of July and 29.6mm of rain in July leading up to the event. Even though the efforts of flocculation and controlled discharge took place two days earlier, the high amount of rainfall and existing saturated conditions resulted in immediate inflows through SD3 and, ultimately, discharge. The discharge was compliant with all EPL criteria at both SD3 and the downstream sampling location. TSS levels remained below 50mg/L (23mg/L at SD3 & 45mg/L downstream) due to the previous flocculation efforts.
- Wet Weather Discharge SB18 & SD3, 10/11th August 2010: Discharge occurred following 20.6mm of rain on the 10th, in addition to the 85.6mm received over the previous month. The discharge was compliant with all EPL parameters except for TSS. Elevated TSS levels included 2320mg/l at SB18, 964mg/l at Driggle Draggie Creek (DDCK, downstream of SB18), 368mg/L at SD3 and 116mg/L at the Un-named Drainage Channel (UNDC, downstream of SD3). The extremely elevated results from the northern point SB18 and DDCK are likely due to difficulty when sampling due to the ill-defined nature of the channel. Low depths resulted in disturbance of sediment to the surface when obtaining a sample. The close proximity of runoff from the northern subsoil stockpile to SB18 would have also had a significant contribution to SB18's overflow of turbid water to DDCK. It should be noted that SB18 was at full capacity leading up to this discharge with no site capacity to utilise water. The discharge results from SD3 were also elevated despite ongoing efforts of flocculation in this storage. The Floc Blocks have proven to be effective with

time and no additional inflow. However for rapid response after consecutive rainfall events, the results prove the method to be ineffective. The downstream UNDC results have similar sampling issues to DDCK due to the ill-defined nature of the channel.

- Wet Weather Discharge SB18 & SD3, 20th August 2010: Further discharge occurred following 11.2mm of rainfall on the 19th and 4.2mm on the 20th of August. Again the discharge was compliant with all EPL parameters except for TSS. Elevated TSS levels included 2300mg/l at SB18, 912mg/l at DDCK, 172mg/L at SD3 and 152mg/L at UNDC. The results are again due to:
 - Difficulty when sampling due to ill-defined channels;
 - The close proximity of SB18 to the northern subsoil stockpile;
 - Full capacity at every dam on-site due to frequent rainfall, despite prioritising discharge dams for use of water for dust suppression; and
 - Insufficient time for Floc Blocks to adequately settle out the additional inflows of sediment laden water after rainfall events.
- Wet Weather Discharge SB18 & SD3, 10th September 2010: Discharge occurred after 13.4mm over the 9th & 10th and a total of 86.2mm over the previous month. All EPL parameters were compliant except for TSS. Elevated TSS levels included 1220mg/l at SB18, 680mg/l at DDCK, and 229mg/L at UNDC for reasons as stated above. SD3 measured exactly on the threshold with a TSS of 50mg/l. This would be due to a period of approximately 21 days since the previous discharge event allowing adequate time for sediment to settle within the dam. This is also evident in SB18 where TSS levels were reduced from 2300mg/l on the 20th August to 1220mg/l for this event.

Water management onsite has been problematic since the start of the year due to the level of disturbance immediately upstream of SD3 through the extension of SB19 and construction of the additional sediment basin SB21. Disturbance upstream of SB18 from the northern subsoil stockpile has also created similar problems. The frequent nature of rainfall events has made it very difficult to adequately reduce the volume of water stored on site through controlled discharge or dust suppression.

Over the last 8 months, Whitehaven has made a concerted effort to reduce the suspended solids in SD3 through the use of Floc Blocks. This has involved the placement of blocks on the inflow of SD3 and the pumping/recirculation of water through the block to activate the flocculent within the dam. The results prove the blocks are effective with time and no additional inflow, however they are ineffective when a rapid response is required such as over the events of this period.

It should also be noted that difficulties occur with the time frame of which results are obtained from the lab. A typical sample can often take a week to receive the final water quality result. Therefore efforts to complete controlled discharges are often delayed as any inflows of sediment laden water whilst waiting for results completely reverse all previous flocculation efforts.

Investigations into further measures for controlling future discharge events have included an additional water storage structure downstream of SD3. There are also

plans for an additional structure downstream of SB18. Rocglen intends to further trap sediment by placing a polymer concrete liner on the inflow to SD3. Construction for the additional storage structures and liner will begin as soon as ground conditions are dry and the relevant approvals have been received.

More recently, samples of the water from SD3 have been referred to BASF The Chemical Company in an effort to test Magnafloc LT425. This is a more active liquid flocculant that after lab testing has proven to provide extremely fast flocculation with only a very small dose rate of 0.5 - 1 litre per megalitre. The liquid floc is safe to use in dam water with no toxicity to fish or aquatic invertebrates as per information provided in the Material Safety Data Sheet (MSDS). Water treatment involves steady application of the Magnafloc mixture through the inflow of a new pump specifically purchased for the flocculation process. A trial at Tarrawonga has proven the method to only take 1 to 2 days to completely flocculate a 5 megalitre dam to noticeably clear water. Water samples taken following flocculation are currently being analysed by the laboratory. The same process will be used at Rocglen at SB18 and SD3 when ground conditions permit, with results to be provided at the next CCC meeting. If proven effective, the Magnafloc should resolve the ongoing issues due to its ability to allow fast and effective controlled discharge before and in-between rainfall events.

Routine surface water sampling was undertaken at selected sites on the 9th August 2010 to obtain background water quality data. There was nothing in these results that were indicative of any change in water quality since mine commencement. The next round of surface water monitoring will be conducted in November 2010.

Complaints

One complaint has been received since the last CCC meeting (up until the end of September):

22nd Sep 2010

The complainant contacted the Environmental Manager at 9:50pm due to excessive noise from the mine throughout the night.

The Environmental Manager spoke with the complainant in relation to the noise and outlined that monitoring the previous month had identified compliance with the exception of the morning monitor which was affected by temperature inversion. It was also noted that monitoring was undertaken again on the 21/9/2010, the evening and night before his complaint, for which all results remained compliant. The results are displayed in the Attended Noise Monitoring section above. The timing of noise monitoring is of concern to surrounding residents and on this basis, it is intended that real time monitors can be established from time to time to demonstrate impacts of meteorological conditions on noise propagation, as opposed to operations on site.

Rehabilitation

A compost trial will be undertaken during November as a means of assessing the value of compost on the rehabilitation, specifically as it relates to the requirement for establishment of cover crops and general rehabilitation performance. Direct comparison will be made between traditional rehabilitation areas, and the area of compost to determine the most appropriate rehabilitation methodology at the Rocglen site.